The Oracle

Newsletter of the Silver Springs Radio Club

Oldest Radio Club in Marion County, FL

K4GSO.us

August 2022

President's Message

Bill Gillespie, KW5BG

Wow! Another busy month. We had a full day of work at Perry Field getting ready for our 75th Anniversary Special Event in September. We had folks who jumped in and worked on the different projects that needed to be dealt with – antennas, cleaning, and air conditioner installation. Some work still needs to be done, but that day was a terrific start. When completed, our operators will have a nice place to spend time telling others about the great club those who were here before us has left us. Sign up for a time to participate in this special event.

The air conditioner in the Green Clover Hall radio room has been installed! The room has been upgraded for us and is a much nicer place to operate from. It will also provide a better environment for the equipment that has been installed. The DMR repeater has been installed and ready for use. If it's not installed by the time you read this, the EchoLink will soon be housed in the radio room. Additionally, the computers and printer have been upgraded. A special thanks to Andy Allen and Hayden Kaufman for their technical expertise in those arenas! And for putting to use our own internet connection.

We spent most of this past Saturday at the North Central FL Outdoor Expo, held in the WEC Expo 2 hall. It was a great event, and we had a large amount of interest in Ham radio as a whole and our club in particular. Hopefully, some of them will continue their interest in Ham radio and those who are Hams will find a home with us and become part of our club family. Thanks to everyone who participated and provided our guests a positive impression of our club.

To get ahead of our **election in November**, here is the timeline we will be working with.

September – Nomination Committee appointed by President

October – Slate announced, nominations from the floor

Continued on next page...

Next Meeting

Tuesday, August 16

Green Clover Hall

319 SE 26th Terrace, Ocala

6:00 PM Mentoring & Socializing

7:00 PM Meeting

Program: North Florida Section News

Marty Brown, N4GL

SSRC Board of Directors first Tuesday, 7:00 PM, Green Clover Hall

Upcoming Events

VE Testing — September 13, GCH

SSRC 75th Anniversary Special Event
September 24-25, Perry Field

Silver Springs Radio Club Net

K4GSO Repeater, 146.610, PL 123

Mondays at 7:30 PM

Photo from KT4WA

November – Election

December – Installation of officers for next year

If you are interested in being on the Nomination Committee, please let me know. We will need to replace the President and Vice President due to reaching the maximum (2) years in a row. The other officers and directors may need to be replaced as needed. We'll know that later. If you would like to serve in any board position, be sure to let the Nominating Committee know.

It may seem early to be discussing Hamfest, but trust me it's not! Put 2 Dec (set up) and 3 Dec (Hamfest) on your calendars. The more participation we have the easier it is to get things done, so sign up online when it's posted.

See you at the meeting on Tuesday!

Membership/Events

Elbert Wilkinson, KQ3K, Membership & Events Chairman

NORTH CENTRAL FLORIDA OUTDOOR EXPO:

The club once again was invited to participate in the North Central Florida Outdoor Expo on August 13th. The expo was held at the beautiful World Equestrian Center on West SR 40. This year's event was by all accounts a big success for the club and gave us and amateur radio excellent exposure to the community.

This year's venue was in Expo #2 located just north of last year's event held in Expo #1. We asked for and received a much improved floor location that gave us ample room for several antennas. We setup on Friday afternoon with a new canopy provided by Adam, NY5E. Banners were hung and portable tables were arranged pending final locations on Saturday. Our antenna farm consisted of a Buddipole in a 20M vertical configuration and a DBJ-1 VHF vertical. Bruce setup and tested his HF Go-Box for FT8 and Bill setup and tested his VHF Winlink station. After testing, the rigs and antennas were removed until deployment the following morning. Extension cords were run from the power taps and taped down to reduce trip hazards. At this point, the setup team was released to go home and rest up for the next day.

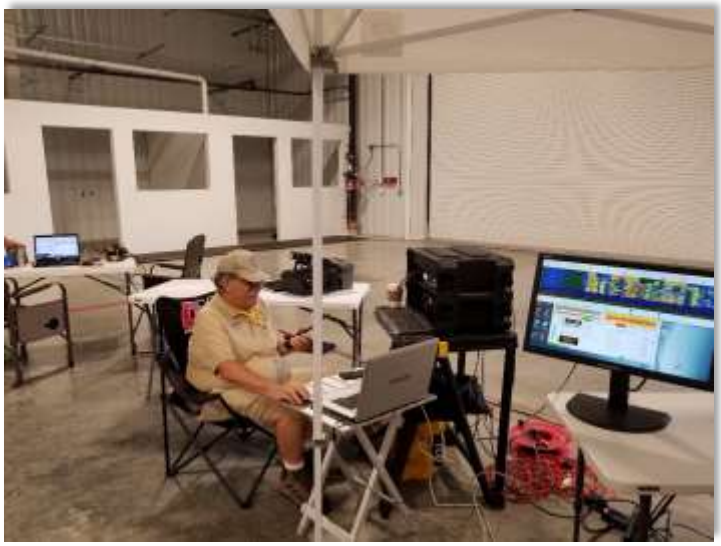
Saturday morning arrived early (as it usually does!) with the team arriving between 7:00-7:30 AM to complete final setup. Antenna were put back in place, rigs setup, final tables arranged, static displays of other radios and antennas setup. Hayden, N2HAY, setup a monitor playing several amateur radio videos and a DMR hotspot. A separate monitor was setup to run PSKReporter to show live reception reports of Bruce's FT8 transmissions.

Photos from KQ3K

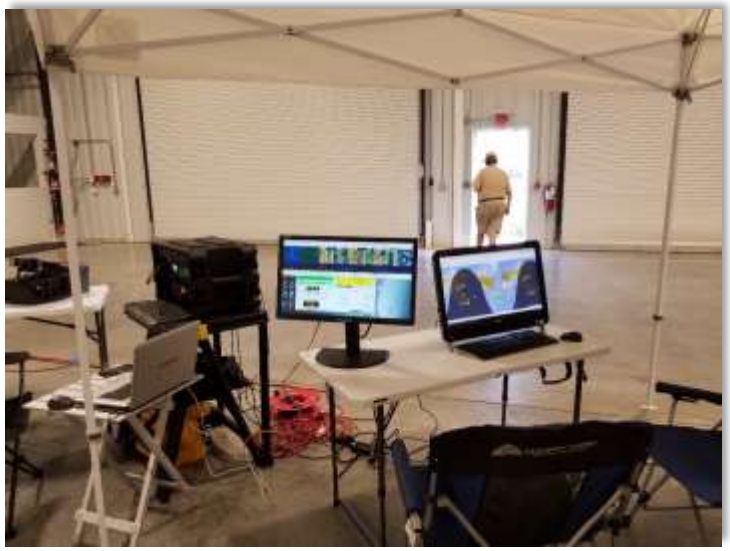
Continued on next page...

Several static displays were setup. Izzy, KT4WA, setup a portable backpack HF CW station. Ron, KS4SW, demonstrated a VHF backpack. Adam, NY5E, setup a FT-857D portable QRO station. I setup a G-90 portable QRP station. We also setup several portable antennas.

Our booth was located in the northwest corner of Expo #2 and actually worked out very well for us. Located next to us was a mobile archer trailer that always seemed to have long lines waiting to shoot. This gave those in line a chance to view our booth, listen to the videos and us to engage them in discussions about the club and amateur radio. By the end of the event, we had numerous contacts, passed out a lot of information and received a lot of interest in the club.



Photos from KQ3K



Our club was well represented and this was a successful event because of the hard work and commitment of Bruce, WA4IPU; Izzy, KT4WA; Bert, N8NN; Hayden, N2HAY; Bill, KW5BG; Ron, KS4SW; Marty, N4GL; Wayne, N4FP; Adam, NY5E and Wayne, WA1PMA.

HAMFEST 2022:

Plans are progressing for our Hamfest to be held on December 3rd with setup December 2nd. Location will again be at First Christian Church, Ocala. Our Hamfest has been sanctioned by the ARRL and vendors have been contacted to confirm their attendance. Most have already confirmed and follow-ups will be made on those who have not.

Hamfest will have indoor commercial vendor space at FCC and outdoor tailgating. The last several years have seen the tailgate area grow in terms of importance and attendance. We were swamped last year. Bruce Richardson, WA4IPU, has run the tailgate area and been designated a Hamfest Co-Chairman.

Please go ahead and signup here to work the event: https://k4gso.us/hamfest/. We need help for Friday setup, parking directors, tailgate, rovers and other critical positions.

More information will follow in board meetings, club meetings, the Oracle and on weekly nets as Hamfest time draws near.

Elbert, KQ3K

Photo from KT4WA

Continued on next page...

Photos from KT4WA

Photos from NY5E

Continued on next page...

Photos from N4GL

Marion County Traffic Net

Gray Moffett, KC3DWY
ARES Net Manager

Welcome to the home of the Marion County Traffic Net. The MCTN is the local affiliate of and is sponsored by the American Radio Relay League's National Traffic System. The primary function of the MCTN is to handle formal Radiogram message traffic as part of the NTS. We encourage you to visit the NTS website for training materials and other resources.

http://www.arrl.org/NTS

The MCTN meets Monday 8:00 PM on the 146.330(-) repeater, PL tone 123. We encourage everyone, with or without traffic, to check in. If you need assistance or have questions about anything we do on the MCTN, or if you have any interest in becoming a member of the MCTN staff, please contact the Net Manager.

Net Statistics—JULY 2022

QNI 16 (Total Check-Ins)
QTC 9 (Total Messages)
QND 60 (Total Minutes)
Total Sessions 4

SM to Visit Friendship ARC in September & You are Invited!

Ken Simpson, W8EK

Scott Roberts, KK4ECK, our NFL section manager will be at our September 12 meeting, and will be doing a presentation. This meeting will be at the Sheriff's substation Southwest District Office, 9048 SW State Rd. 200, Ocala, FL 34481 on route 200, at 1:30 PM.

Please mark your calendar and plan on attending yourself. In addition, we ask that you spread the word to any other hams, or ham clubs, that you may know. We want to have a good turnout!

For more info: E-mail W8EK@FLHam.net or W8EK@arrl.net
Voice Phone (352) 732-8400

3D Printers and Printing: A Brief Introduction for Ham's

Ivory Williams, W6IVY

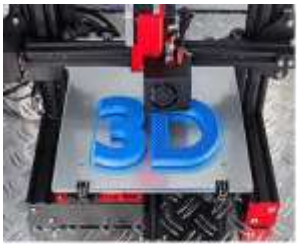
This introduction is for ham's (Amateur Radio Operators) without a CAD (Computer Aid Design) background, but wanting to have their own workshop and see 3D Design and Printing as an economical way to achieve that dream. A few months ago, more like late last year, I think. My California buddy Ton, KM6RNG, called me. He was as excited as I have ever heard. Over the last few years has bought or built 9 or 10 different models. But now he had found the perfect 3D printer: price, features, ease of building, and performance, the Voxelab Aquila.

Like many hams I had briefly looked at them, from a distance, but the cost and assembly kept me away. So I did my research on his recommendations and the reviews confirmed his recommendation, for me.

What is 3D Printing (and Printers):

3D printing allows you to print objects without the tools, space and mess of a traditional workshop. 3D printers come in several types and models. They can be as small as a desktop printer: the size of the printing bed (surface) determines the size. This introduction references the most popular, Fused deposition modeling (FDM). The most popular filament is called PLA, poly(lactic acid) poylactide is a thermoplastic polyester. Other types of filament include, ABS, PET, PETG, TPU, Nylon, ASA, PC, HIPS, Carbon Fiber, and even Metal (Aluminum, Copper, Bronze, etc).

As the printer deposits a material called filament, from a roll, in layers on the print bed (print surface), the Hot End (print head) moves Up and Down (raises and lowers) on the Z axis with each pass while the Hot End (print head) moves across the surface. It places another layer of filament on top of the previous layer, slowly building the objects height. The bed moves back and forth as the Hot End moves horizontally.



3D printers are very precise, with nozzle sizes and layer heights as small as 0.1mm. Unlike regular printers, almost every aspect of 3D printing can be controlled, depending on the object being printed.

And it can take minutes, hours and/or days to print a project.

So, unlike the traditional printer, a 3D printer prints width, length (depth), and height. **So, if you can image it, design it, (or borrow) you can print it.**

The Voxelab Aquila at a price of $149 - $189 depending on the sale, did indeed did fit my budget. For those in the know, it's a Ender 3 V2 (an upgrade of the budget 3D printer king) clone in every sense of the word, except the price is over $100 cheaper. I bought the X2 model (newer) at $199 at Amazon.

The printer comes with a small amount of filament and several designs to get you started. Out of the box the red filament printed perfectly. But using the companies own regular full roll, disaster. TVAD, (Thrill of Victory and Agony of Defeat.) After changing to a different brand of filament and tweaking the calibration I was again getting good prints. That sample filament is not available to purchase. Could it be a special blend to ensure a good user experience? Although later the Voxelab filament starting printing OK. All filament is not created equal.

The printer is modular and comes 3/4 assembled, (the many parts are deceiving, just bolts and accessories). The main item is 2 each upright standards to be bolted onto the bed.

Continued on next page...

If this is your first time it could take 1-2 hours or less, depending on how you approach new projects. Note: my buddy did lie, it took me more than 30 minutes (took that long to get it out of the box). I spent two days, (I watched several videos also) and being extra careful and cautious because I wanted to really understand how it all worked. It could be easily done in under 90 minutes, if you are in a hurry.

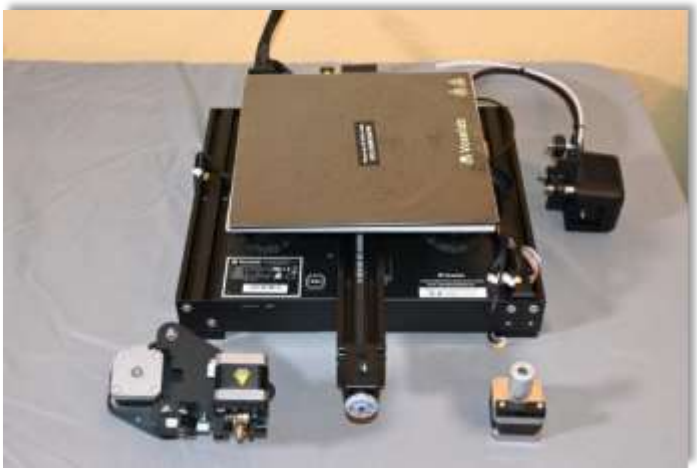
1. Design your own: I started with TinkerCAD and now use FreeCAD. There are many, many CAD programs available, both free and paid.

2. Download files designed by others: sites like https://www.thingiverse.com/

or even NASA, https://nasa3d.arc.nasa.gov/ (Just google "3D files").

As an entry level printer I have been very pleased. Finally a hobby that's very affordable, fun and saves me money.

Voxelab Aquila	Creality Ender 3 V2
Less than $200	More than $200
Bed Size: 220x220x250mm (8.66x8.66x9.84")	Same



Base Unit

Main Parts and Accessories

The Villages Amateur Radio Club Technician License

Brad Castelli, KN9B, kn9b@arrl.net

The Villages Amateur Radio Club (TVARC) will hold a seven session Technician license course including a licensing test this fall. Classes will be held on Monday evenings from 6:30 PM to 8:30 PM, September 19th to November 7, 2022 at the Eisenhower Recreation Center, 3560 Buena Vista Blvd., The Villages, FL 32163. Text Book required: ARRL Ham Radio License Manual - 5th Edition (July 2022 to June 2026). Classes are free and open to public but YOU MUST REGISTER in advance! ARRL VEC Testing will be held November 7, normal exam fees apply. More class details and study resources are listed on the club website; www.K4VRC.com ("Interest in becoming a ham" tab). You are encouraged to get your friends to sign-up too, so you can study together.

[1]CQ, CQ, CQ, 3D Printer: A Visual Introduction for Hams

Ivory Williams, W6IVY

Have you ever wished you could have been part of the product development team for a new product? It seems, we say, "if they had only done this or that it would be perfect, or that feature is useless or missing". So we are left to use it as is, make our own modifications or run to the big hardware store for DIY materials. You only have to look about your shack and you'll know I'm right. Well, now you can.

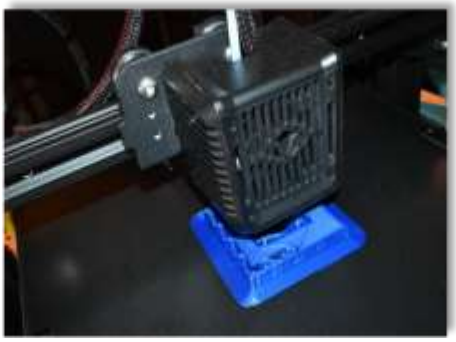
Don't forget to buy yourself a nice BIG Lighted MIRROR. When you start looking for someone to blame, just look in the mirror. Product development is not as easy as you think. 73, Ivory (W6IVY)

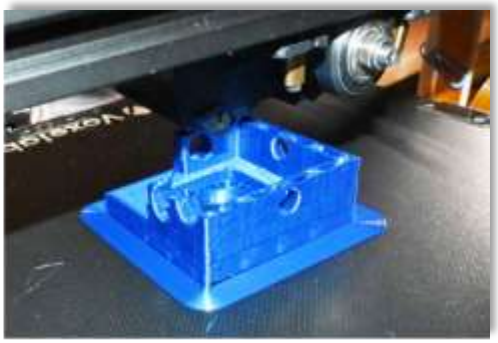
Now the baby pictures, and if your imagination starts to think about doing it your way, you can read the rest of the article below. *3D Printers and Printing: A Brief Introduction for Ham's*

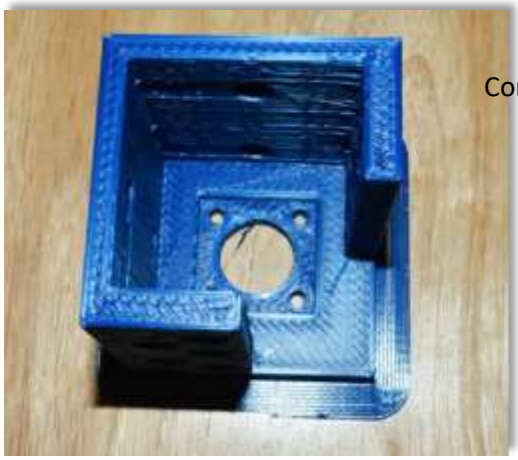
Description of Items 3D Printed
My Portable 384W Battery Box: BMS Frame and Terminal Cover
Failed Print: BMS Frame
My Prototype Corner Dipole Project- 50mm x 50mm (2"x2") My antenna's are in house. This is a combination of things I have learned
(***Designed by Others***) Buck Converter and Raspberry Pi Zero 2 Computer Case options to modify my printer.
My pre-design, pre-production Inverted Dipole base
To Do: (1) PowerPole Panel Mounts and Housing for 1K Battery Box (2) Mini Antenna Winders (3) who knows!!!

Continued on next page...

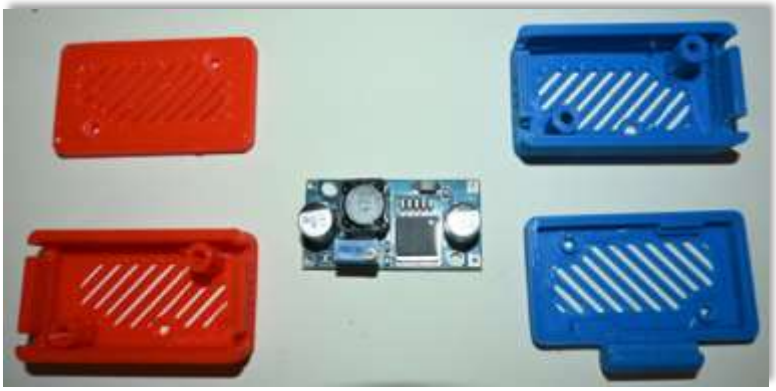
The Agony of Defeat (my first print job, the BMS frame. It failed with only 30 minutes left in a 5 ½ hour print. Printed with a [.4mm nozzle and .2mm layer height (fine print)] The upper right edge pulled loose from the bed and the nozzle caught on the edge and pulled the print loose. Using a larger nozzle would cut the print time to less than 90 minutes.







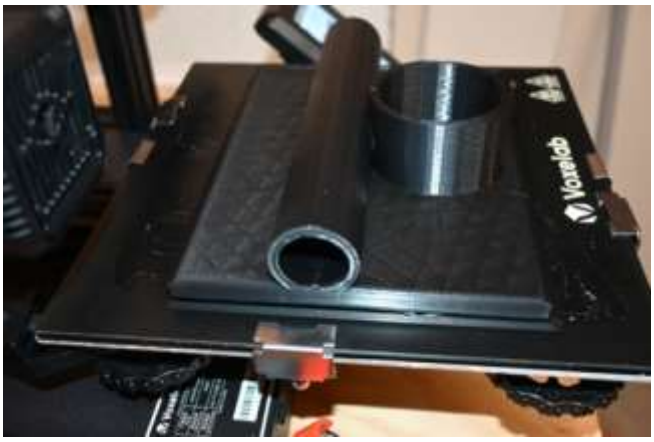
Corner Dipoles



Buck Converters and Raspberry Pi Zero Cases Used to Modify my printer

Continued on next page...

[1]Theses cases were designed by others. I just downloaded their images and printed. This project used the Raspberry Pi Zero for wireless printing and control. The buck converter is used to change the printer 24v to 5v for the Pi. This is project is from You Tuber at https://www.youtube.com/3dprintsos. He is the best when it comes to the Voxelab printer.



Based on an idea from the ARRL: Small Antennas for Small Spaces eBook, by author Steve Ford, WB8IMY. It is a self-supported Inverted V Dipole.

Oh, did I mention, if you want to be the "Chief Cook and Bottle Washer", you also assume the thrill of victory along with the agony of mistakes. You fix it. When going back and forth between inches and millimeters it's easy to get confused. That's what happened with the oversize support mast ID. But that's also the beauty of 3D printing, if at first you don't succeed, try again. So, I just made an insert for the over-sized ID mistake. [73, W6IVY]

Homebrew Gear for Fox Hunting

by Bert Garcia N8NN

A ham radio fox hunt is a radiosport activity where a hidden transmitter is found by using direction find equipment. The fox transmits on a known frequency at regular intervals while the participants, the hounds, use directional antennas to locate the fox. This article describes homebrew equipment you can use to conduct a fox hunt.

FOX - The fox should be a low powered transmitter that can send an intermittent signal and identify with the owner's callsign. Bert N8NN used a Baofeng handheld radio transmitting at 1 watt on the 2-meter band. A small digital recorder (1) was used to play an audio loop of CW tones and my callsign. The recorded audio loop was 30 seconds long followed by 30 seconds of silence. The transmit time should be long enough to allow the hounds to determine a direction to the fox. The period of silence allows the transmitter to cool off between transmissions.

The digital recorder output was fed into the handheld microphone connector and the VOX was turned on. To ensure the fox did not run out of battery power during the hunt, a large external battery was used for the handheld and a smaller external battery was used for the digital recorder. The fox was put into a plastic box and an information label was placed on the top of the box.

Figure 1. The Fox

Figure 2. Information label.

DIRECTIONAL ANTENNAS - Two different 3-element yagi antennas were constructed by Randy N1JOO and Bert N8NN. For direction finding the antenna pattern should have a narrow beamwidth and a high front-to-back ratio. The yagi design program YagiCAD (2) was used to optimize the element length and spacing that would create a directional pattern yielding a narrow beamwidth and a high front-to-back ratio. We chose a beamwidth of 66 degrees and a front-to-back ratio of 53 dB.

One yagi was constructed by Randy N1JOO using metal measuring tape elements and a PVC boom (3). The second yagi was constructed by Bert N8NN using aluminum rods and a wooden boom. The performance of the antennas appeared to be equal, and the materials cost was essentially the same.

In Figures 3 and 4 your can see the Offset Attenuators that are described below. They are mounted on the boom and powered by 9 volt batteries.

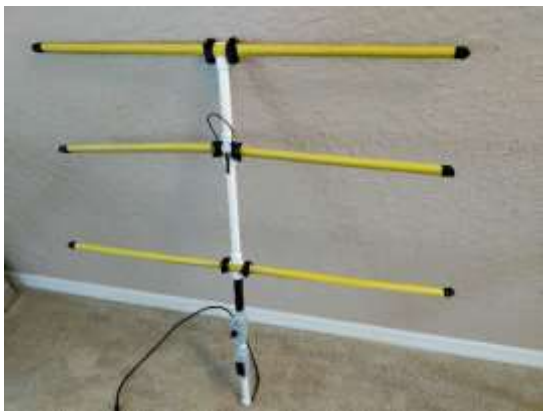


Figure 3. N1JOO's measuring tape yagi.

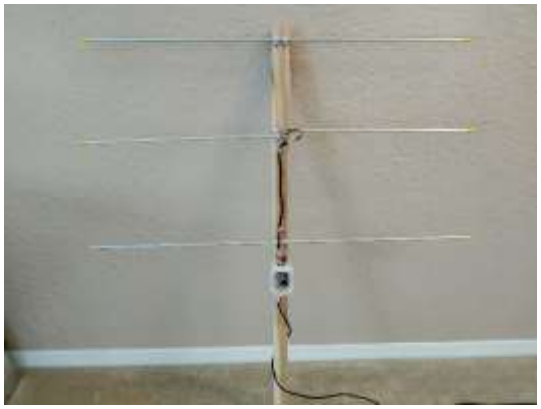


Figure 4. N8NN's aluminum rod yagi.

OFFSET ATTENTUATOR - When the hound is close to the fox, the received signal is very strong, and the radio's S-meter is at full scale making it impossible to obtain a directional reading. An attenuator is needed between the radio and the antenna.

Continued on next page...

Inexpensive offset attenuator kits were obtained from John KC9ON (4). The offset attenuator generates a 4 MHz signal that is mixed with the received signal and the resulting offset appearing above and below the signal is lower in strength allowing the S-meter to give useful readings. For example, if the fox is transmitting on 147.000 MHz, the offset attenuator produces a signal at 143.000 MHz. The hound's radio is tuned to 143.000 MHz. The strength of the 4 MHz signal is varied as need to control the S-meter reading. Tests showed that the offset attenuator allowed accurate directional readings to be had within 6 feet of the fox. More information about the offset attenuator kit is provided in a separate article.

In summary, organizing a Fox Hunt can be fun and rewarding for any group of hams. Constructing the equipment is relatively inexpensive. If you conduct a Fox Hunt, be sure to include a large amount of food and drink for consumption after the hunt. Enjoy!

1. Digital recorder. https://tinyurl.com/6zcph2kt
2. YagiCAD. http://www.yagicad.com/
3. Measuring tape yagi. https://n5dux.com/ham/tape-measure-yagi/
4. Offset Attenuator. https://kc9on.com/product/fox-hunt-offset-attenuator/

Fox Hunt Offset Attenuator

By Bert Garcia N8NN

There is an amateur radio activity called a "Fox Hunt". A hidden low-powered transmitter, the Fox, sends an identification signal at regular intervals on a known frequency. Participants try to find the Fox using direction finding equipment. The first person or team who finds the Fox wins the event. Usually, the Fox transmits on the 2-meter or 70-centimeter band because directional antennas can be reasonably small and portable, and handheld radios for those bands are common. A homemade yagi antenna is popular and inexpensive to make for Fox Hunting [1,2,3,4].

Your hunt goes well until you close in on the Fox. The Fox signal becomes so strong that you can no longer find a peak or null with your antenna. The solution is to use an offset attenuator such as the one sold by John Clements KC9ON [5]. This device generates a 4.00 MHz signal that will mix with the Fox signal to produce another weaker signal offset at plus or minus the Fox frequency. For example, if the Fox is on 146.700 MHz, the offset signal will be received at 142.700 and 150.700. The strength of the offset signal can be adjusted using the potentiometer so that a peak or null can be heard.

KC9ON's kit costs $10 and can be built in less than an hour. The documentation is clearly written and includes step-by-step instructions with diagrams to show parts locations. Install the attenuator between your yagi antenna and your handheld radio. CAUTION: Do NOT transmit into the attenuator! You will damage the attenuator, and you may damage your radio.

Figure 1: The assembled offset attenuator.

Figure 2: Closeup of the offset attenuator.

Building a directional antenna and this offset attenuator is a fun project for your local club or group. Organize a Fox Hunt and have fun!

1. Fox hunt ham radio hidden transmitting hunting, https://www.youtube.com/watch?v=eQSiTqH9Dzw.
2. WB2HOL Tape Measure Beam Kit, https://www.youtube.com/watch?v=eQSiTqH9Dzw.
3. Tape Measure Yagi Beam Antenna, https://www.youtube.com/watch?v=BmHoQrDfw-0.
4. Tape Measure Beam, http://www.oparc.net/attachmates/ardf/WB2HOL_TapeMeasureAntenna.pdf.

SSRC Classified Ads

If you have a business service and want to place an ad in this section, contact Marty Brown, n4gl.marty@gmail.com.

At this time we are not charging for advertising space, however the board may approve fees in the future.

Submitted by Andy, NA4DA

2022 SSRC Officers

President - Bill Gillespie, KW5BG
Vice President - Jim Burgess, KN4MIV
Secretary - Gray Moffett, KC3DWY
Treasurer -Tim Trombley, K8TAT
Past President - Elbert Wilkinson, KQ3K

Directors:
Mike Condon - W9MNC
Wayne Brown - N4FP
Hayden Kaufman - N2HAY

Committee Chairs

Membership & Events – Elbert Wilkinson, KQ3K
Trustee K4GSO – Wayne Brown, N4FP
Newsletter – Marty Brown, N4GL

Club Minutes and Financial Reports

SSRC Information

SSRC Logo
Shirts & Caps
Green Clover Key Card
Perry Field Access
Membership Application
Buy/Sell/Trade
QST NFL – NFL Section Newsletter
Silver Springs Radio Club Website
NFL Section Website
WA7BNM Contest Calendar
NG3K DX